(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 December 2001 (27.12.2001)

PCT

(10) International Publication Number
WO 01/99382 A2

(51) International Patent Classification[7]: H04L 29/06

(21) International Application Number: PCT/IB01/01070

(22) International Filing Date: 19 June 2001 (19.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0014970.8 19 June 2000 (19.06.2000) GB

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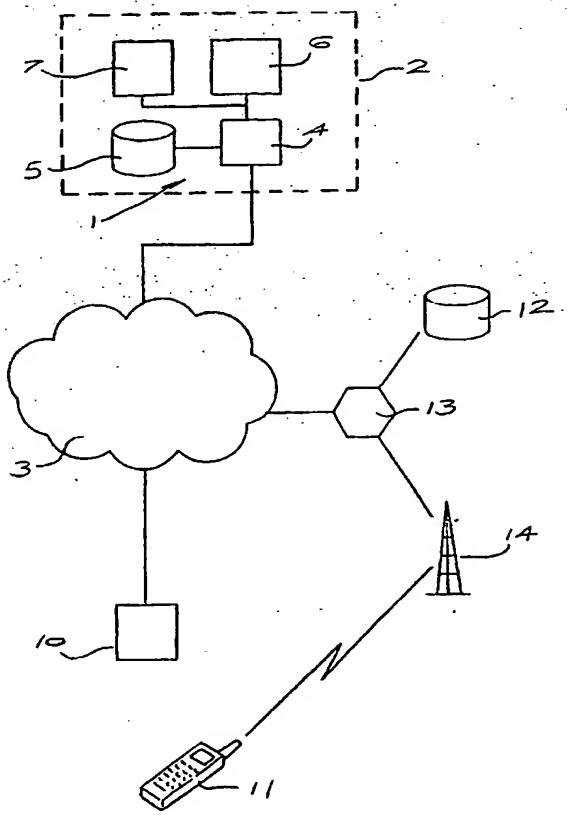
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

[Continued on next page]

(54) Title: A METHOD AND SYSTEM OF CONTROLLING ACCESS TO A REMOTE LOCATION



(57) Abstract: The invention relates to a method of controlling electronic access by a user to a remote installation, by identifying and qualifying the user and then forwarding to him, on an independent receiver, an access code which affords him access to the installation.

WO 01/99382 A2

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A METHOD AND SYSTEM OF CONTROLLING ACCESS TO A REMOTE LOCATION

FIELD OF THE INVENTION

This invention relates to a method of controlling access to a remote location forming part of a communications network and to a system employing such a method of access control.

BACKGROUND TO THE INVENTION

Access to communication networks, or to locations forming part of such networks, is usually controlled. A common way of controlling access is to provide a user with a password. The user enters his name and password and if these match the location's records access is allowed. A problem with this method of access control is that it is very difficult to or impossible to prevent access where a user has his password stolen and a third party uses this information to gain access.

In an attempt to overcome this problem it has been proposed that the device, usually a computer, used to access the network be identified. This method

presupposes that users will tend to use the same device and can be useful where this is indeed so. The method fails, however, where users do not use the same device repeatedly or where the device is stolen.

OBJECT OF THE INVENTION

It is an object of this invention to provide a method and system of controlling access to remote location which will at least partially alleviate some of the abovementioned problems.

SUMMARY OF THE INVENTION

In accordance with this invention there is provided a method of controlling electronic access by a user to an installation through a transceiver, comprising: identifying the user against a register and initiating of an access code by the transceiver; onwardly communicating the access code through an independent communication to a receiver, which is accessible to the user, after confirmation against a second register that the receiver is allowed for use by the user; and transmitting the code by the user to the transceiver to permit access to the installation.

Further features of the invention provide for lines of communication from the user to the transceiver and from the transceiver to the receiver to be through a public communication network and for the public communication network to be the Internet.

In accordance with this invention there is provided a method of controlling access to a remote location which includes:
generating an access code when a user attempts to gain access to the location;
sending the access code to a mobile communication device; and
permitting access to the remote location if the user provides the access code to the remote location within a predetermined period of time.

Further features of the invention provide for the access code to be generated once a user identification has been provided; for the details of the mobile communication device to be supplied to the location prior to access being sought; and for the user identification and details of the mobile communication device to be checked against a register prior to the access code being sent to the mobile communication device.

Still further features of the invention provide for the access code to be sent at least partially by a wireless transmission; for transmission to occur over a GSM network; and for transmission to be in a short message service (SMS) format.

Yet further features of the invention provide for a unique access code to be generated each time a user attempts to gain access to the remote location; and for each access code to have a predetermined period of validity associated therewith.

The invention also provides a system for controlling access to a remote location comprising control means to generate an access code when a user attempts to gain access to the remote location and to cause the access code to be sent to a mobile communication device.

Further features of the invention provide for the mobile communication device to be independent to the device used to attempt to gain access to the remote location; for the access code to be sent to a GSM device, preferably a cellular telephone; and for the access code to be sent in an SMS format.

Still further features of the invention provide for the control means to generate an access code after being provided with a user identification; for the control means to form part of the remote location or to be remote therefrom; for the control means to check the user identification and mobile communication device details against a register prior to sending the access code to the mobile communication device; and for the register to include records from a service provider to the mobile communication device.

Yet further features of the invention provide for the control means to generate a unique access code each time a user attempts to gain access to the remote location; and for each access code to be valid for a predetermined period of time.

Further features of the invention provide for the remote location to be accessible through a communication network; and for the communication network to be a public communication network, preferably the Internet.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described, by way of example only, with reference to Figure 1 which is a schematic diagram of a communication network.

DETAILED DESCRIPTION OF THE DRAWINGS

A system (1) for controlling access to an installation which may be a remote location (2) connected to a public communication network (3), in this embodiment the Internet, is shown in Figure 1 and includes a transceiver which may be a control means (4) and a registry (5). The control means (4) acts as a gateway to web sites (6,7) which form part of the remote location (2) and operates in the following manner.

When a user (10) connected to the network (3) through a computer (not shown) wishes to gain access to the remote location (2) a connection to the location (2) is established in the normal way and the user (10) connected to the control means (4). The control means (4) prompts the user (10) to identify himself by means of a user name which is allocated to the user (10) in a signing up procedure at the time the user (10) first attempts to use the remote location (2). Once the user (10) has provided his user name, the control means (4) checks the user name against the registry (5) to ensure that access can be provided. If there is no bar to providing access to the user (10) the control means (4) generates a unique access code which is valid for a

predetermined period of time, in this embodiment five minutes. The control means (4) then sends the access code to a receiver which may be a GSM cellular telephone (11) which is recorded in the registry (5) as belonging to the user (10).

However, before the access code is actually sent the control means (4) connects to a registry (12) of the service provider (13) of the cellular telephone (11) and verifies that the cellular telephone (11) is registered in the name of the user (10) and that no bars have been placed on the cellular telephone (11).

If no problems are identified during the check of the registry (12) the control means (4) sends the access code in SMS format to the cellular telephone (11) using the transmitter network (14) of the service provider (13) in conventional fashion.

Once the user (10) receives the access code on his cellular telephone (11) it is provided to the control means (4) which permits access to the remote location (2) if it is the same as the code it issued.

It is envisaged that the system will be effective in identifying persons wishing to gain access to remote locations as an independent channel of communication is used to provide the person with a constantly changing access code. The use of GSM cellular telephones is particularly attractive as these devices operate on a SIM card which uniquely identifies a telephone. Also, such telephones are fast becoming the communication tool of choice for many people which in turn means that the devices are constantly at hand to such people.

A further advantage of the system is that stolen or lost cellular telephones can easily be barred thus making it difficult to use a the cellular telephone to gain access to the remote location by stealing it.

It will be appreciated that any kind of remote location requiring access control, especially those which permit financial transactions to be effected, could be used with the system. It will further be appreciated that many other embodiments of a system exist which fall within scope of the invention especially as regards the information required from the user and the means in which the access code is sent to the user. For example, a user name and password could be required before the access code is generated and sent. Also, any suitable mobile communication device could be used including paging devices.

CLAIMS:

1. A method of controlling electronic access by a user to an installation through a transceiver, comprising: identification of the user against a register and initiation of an access code by the transceiver; onward communication of the access code through an independent communication to a receiver, which is accessible to the user, after confirmation against a second register that the receiver is authorised for use by the user; and transmission of the code by the user to the transceiver to permit access to the installation.

2. A method as claimed in claim 1 wherein lines of communication from the user to the transceiver and from the transceiver to the receiver are through a public communication network.

3. A method as claimed in claim 1 or 2 wherein the public communication network is the Internet.

4. A method of controlling access to a remote location which includes: generating an access code when a user attempts to gain access to the location; sending the access code to a mobile communication device; and permitting access to the remote location if the user provides the access code to the remote location.

5. A method as claimed in claim 4 wherein the user must provide the access code to the remote location within a predetermined period of time.

6. A method as claimed in claim 4 or 5 wherein the access code is generated once a user identification has been provided to the remote location.

7. A method as claimed in any one of claims 4 to 6 wherein the details of the mobile communication device are supplied to the remote location prior to access being sought.

8. A method as claimed in claim 7 wherein the user identification and mobile communication device details are checked against a register prior to sending the access code to the mobile communication device.

9. A method as claimed in any one of claims 4 to 8 wherein the access code is sent at least partially by a wireless transmission.

10. A method as claimed in claim 9 wherein the transmission occurs over a GSM network.

11. A method as claimed in claim 10 wherein the transmission is in a short message service (SMS) format.

12. A method as claimed in any one of claims 4 to 11 wherein the access code is a unique access code to be generated each time a user attempts to gain access to the remote location.

13. A method as claimed in any one of claims 4 to 12 wherein each access code has a predetermined period of validity.

14. A method as claimed in any one of claims 4 to 13 wherein the remote location is an on-line banking facility.

15. A method as claimed in any one of claims 4 to 14 wherein a banking card is used to provide the user identification to the remote location.

16. A system for controlling access to a remote location comprising control means to generate an access code when a user attempts to gain access to the remote location and to cause the access code to be sent to a mobile communication device.

17. A system as claimed in claim 16 wherein the control means generates an access code after being provided with a user identification.

18. A system as claimed in claim 16 or 17 wherein details of the mobile communication device are supplied to the remote location prior to access being sought.

19. A system as claimed in claim 18 wherein the control means checks the user identification and mobile communication device details against a register prior to sending the access code to the mobile communication device.

20. A system as claimed in claim 19 wherein the register is to include records from a service provider to the mobile communication device.

21. A system as claimed in claim 16 to 20 wherein the mobile communication device is independent to the device used to attempt to gain access to the remote location.

22. A system as claimed in claim 16 to 21 wherein the control means is to generate a unique access code each time a user attempts to gain access to the remote location.

23. A system as claimed in claim 22 wherein each access code is valid for a predetermined period of time.

24. A system as claimed in claim 21 wherein the mobile communication device is a GSM device.

25. A system as claimed in claim 24 wherein the GSM device is a cellular telephone.

26. A system as claimed in claim 24 or 25 wherein the access code is sent in an SMS format.

27. A system as claimed in claim 16 to 26 wherein the control means is remote from the remote location.

28. A system as claimed in claim 16 to 26 wherein the control means forms part of the remote location.

29. A system as claimed in claim 16 to 28 wherein the remote location is accessible through a communication network.

30. A system as claimed in claim 29 wherein the communication network is a public communication network.

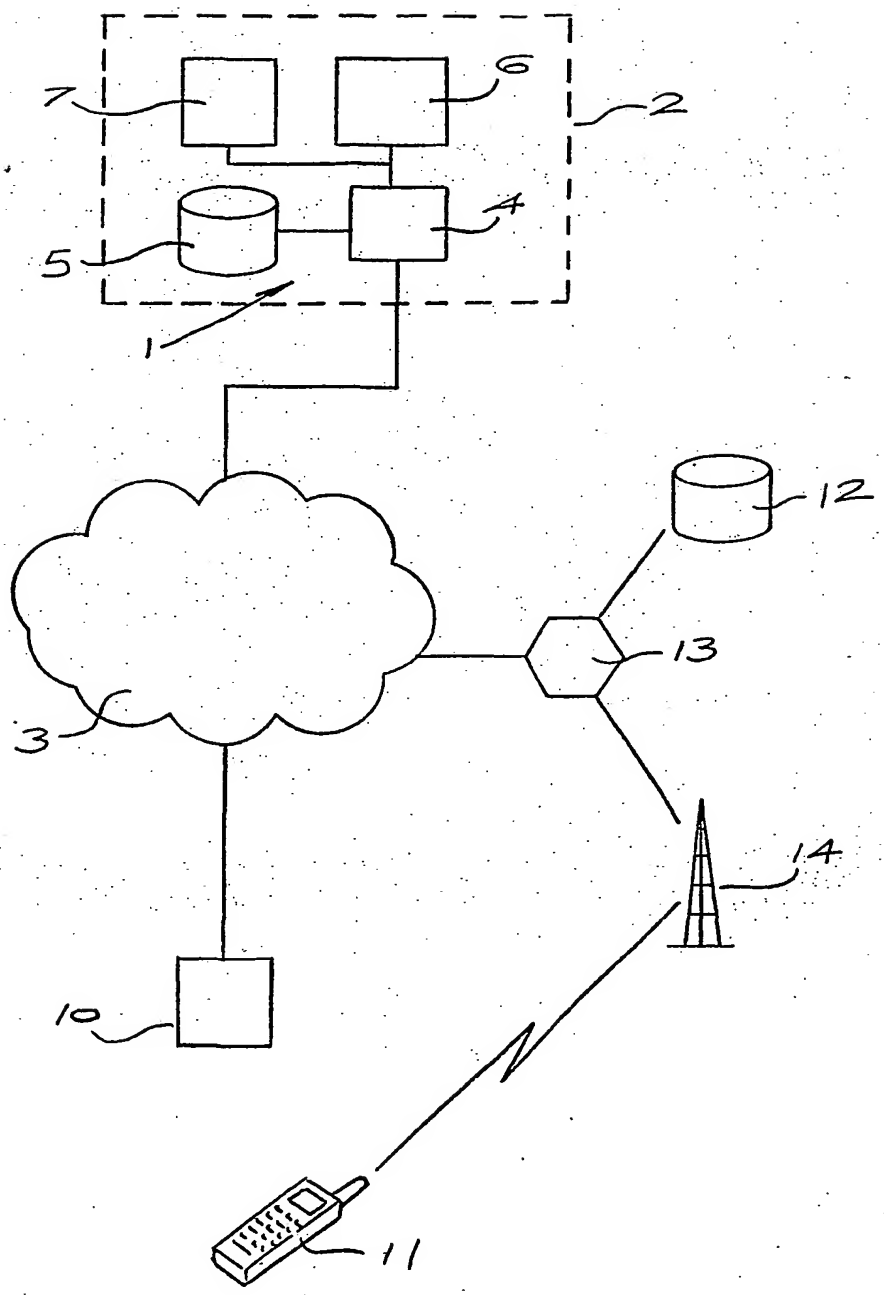
31. A system as claimed in claim 30 wherein the communication network is the Internet.

32. A system as claimed in any one of claims 16 to 31 wherein the remote location is an on-line banking facility.

33. A system as claimed in any one of claims 16 to 31 wherein the control means includes a terminal that will enable banking transactions to be performed.

34. A system as claimed in claim 33 wherein a banking card is used to provide the user identification to the control means.

FIG 1



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 December 2001 (27.12.2001)

PCT

(10) International Publication Number
WO 01/99382 A3

(51) International Patent Classification[7]: H04L 29/06 A2 -11-

(21) International Application Number: PCT/IB01/01070

(22) International Filing Date: 19 June 2001 (19.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0014970.8 19 June 2000 (19.06.2000) GB

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(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

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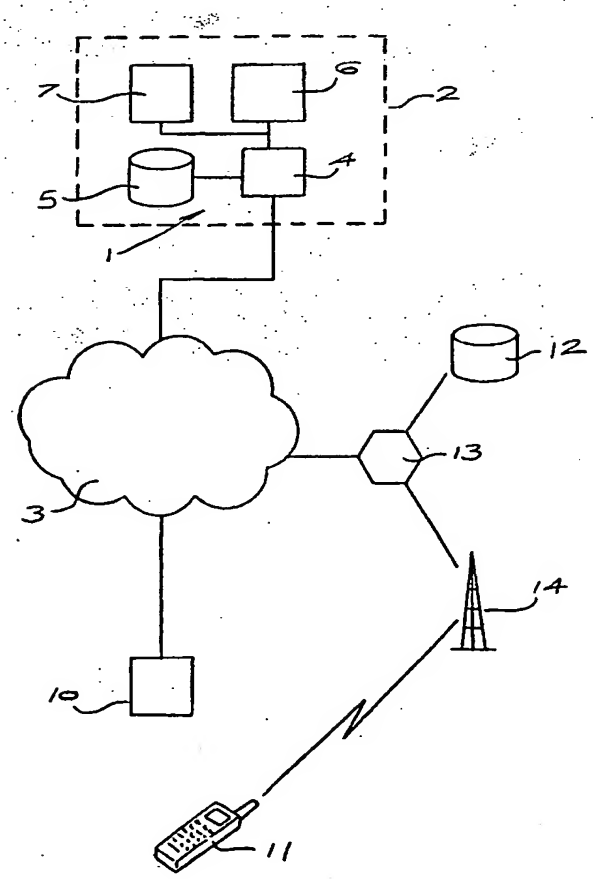

(57) Abstract: The invention relates to a method of controlling electronic access by a user to a remote installation, by identifying and qualifying the user and then forwarding to him, on an independent receiver, an access code which affords him access to the installation.

WO 01/99382 A3

(88) Date of publication of the international search report:
21 March 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Inter nal Application No
IB 01/01070

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, COMPENDEX, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 31306 A (NOKIA MOBILE PHONES LTD ;KURKI TEEMU (FI); SORMUNEN TONI (FI)) 28 August 1997 (1997-08-28) abstract; figures 2,3 page 1, line 30 - line 19 page 4, line 18 -page 5, line 9	1-4, 6-22, 24-34
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X	WO 95 19593 A (KEW MICHAEL JEREMY ;LOVE JAMES SIMON (GB)) 20 July 1995 (1995-07-20) abstract; figures 1-3 page 1, line 16 -page 2, line 24 page 7, line 34 -page 9, line 11	1,4,16
Y	page 3, line 14 - line 24 ---	5,23

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search	Date of mailing of the international search report
21 December 2001	04/01/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Pereira, M

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Inter[illegible]al Application No
PC[illegible]8 01/01070

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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